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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,226	12/07/2004	Philippe Busson	PU0240	2613

22840 7590 10/09/2007

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EXAMINER	
LISTVOYB, GREGORY	
ART UNIT	**PAPER NUMBER**
1796	

MAIL DATE	DELIVERY MODE
10/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/517,226	BUSSON ET AL.	
	Examiner	Art Unit	
	Gregory Listvoyb	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

Claims1-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al (US patent 5288763) Li in combination with Matyjaszewski et al (US patent 5763548) herein Matyjaszewski.

In reference to claims 1, 2, 6, 7, 12, 14, 15, Li discloses a method of producing a cross-linked polymeric support having a multimodal pore structure (Abstract) comprising the steps of:

providing a degradable template macromolecule;

providing an organic phase, which comprises 5-50% wt of template macromolecule (column 5, line 5), one or more radically polymerisable multifunctional monomers (i.e. vinyl phenol, column 3, line 20) in a solvent, and an aqueous phase, to produce a cross-linked (crosslinked with Divinylbenzene Column 4, line 20) polymeric support having a primary pore structure and comprising a template molecule. Then the support obtained subjects to degrading conditions to at least partially remove the template molecule from within the support to produce a cross-linked polymeric support having a secondary pore structure in addition to the primary pore structure.

Li does not positively teach that template macromolecule can initiate a polymerization. However, he teaches that the reaction can start even without any

initiator (i.e. benzoyl peroxide, column 4, line 65). Therefore, at the absence of well-known initiator the template macromolecule itself initiates a polymerization.

In reference to claim 3, template molecule links with core polymer with reaction between ester or amide with acid halide (column 3, line 65).

Regarding claims 10-11 and 13-14 the template removal takes place by alkaline hydrolysis (column 5, line 45), where only ester or amide covalent bond between template and core polymer is cleaved. Therefore, the secondary pore size controlled by the molecular weight of the template.

Regarding Claims 16, 18 and 19 the final support, which has spherical particle size within the range of 3-1000 um with macropore size of 3.5-10000 nm and microspore diameters of 0.1-3.5 nm (column 4, line 40) can be used in chromatographic separations (Abstract). Thus it inherently has specific surface are in the range of 150-300 m2/g, which are typical values for chromatographic media.

In reference to claim 17, Lee does not teach that the polymeric support is a monolith. Monolith can be formed when all the reaction steps occur inside the column. Since Li's reaction conditions do not require high pressure and temperature, there are no technical obstacles to make Li's support inside chromatographic columns. Monolith support has extremely low backpressure, which is a very attractive feature for

chromatographic separations. Therefore, it would be obvious to a person with ordinary skills in the art to prepare a monolith support using Li's process.

Li does not teach a catalyst comprising transition metal and a ligand.

Regarding claims 2, 4, 5, 8 and 9 Matyjaszewski discloses a new polymerization process, initiated by transition method (i.e. Cu, Abstract) with coordinated carbon atom (Fig. 15), which is suitable for synthesis dendritic polymers (Abstract).

Matyjaszewski's polymers have very narrow MWD =1.15.

Therefore, it would be obvious to a person with ordinary skills in the art to use Matyjaszewski's initiator in Li's process in order to obtain narrow MWD and, therefore, uniform pores in the final chromatographic support.

Response to Arguments

Applicant's arguments filed on 6/21/07 have been fully considered but they are not persuasive.

Regarding Applicant argument that template macromolecule in Li's disclosure can not initiate polymerization, Fujimori et al (Effect of viscosity..., Pol. Bull, 9, 204-207(1983) evidences that poly(4-vinylpyridine) (used by Li as a template molecule, see

Column 3, line 25) greatly increase rate of radical polymerization (see Abstract). Li teaches that the reaction can start even without any initiator (i.e. benzoyl peroxide, column 4, line 65).

Therefore, poly(4-vinylpyridine) can represent at least part of an initiating system.

Examiner disagrees with Applicant's argument that narrow MWD does not correlate with pore size distribution. Narrow MWD means that all macromolecules have similar length and occupy similar volume. Thus, the degraded the macromolecules leave pores with narrow distributution.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Listvoyb whose telephone number is (571) 272-6105. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Listvoyb
Examiner
Art Unit 1711

GL
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James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700